

Qwest Foundation for Education Competitive Sub-grant Application Assurance Sheet

Project Title: Smartboard System Amount of Request: \$ 8131.00
District Name: Cassia Joint Number: 151
Name of Certificated Teacher (or "lead teacher" if more than one): Julie Nannenga
Name of School currently teaching at: Cassia Alternative High School
Years taught in Idaho K-12 public education: 7
Content area(s) that you are teaching in Idaho K-12 public education: Natural Sciences

I certify that if I receive a Qwest Foundation for Education Grant –

- I agree to create a video highlighting my project for the purposes of sharing best practices with other Idaho K-12 teachers.
- I agree to do one presentation on my project to other Idaho K-12 teachers before October 31, 2009.
- I agree to submit an electronic report to the Idaho State Department of Education before October 31, 2009.

Superintendent Name (print)	E-mail	Telephone
<u>GAYLEN SMYER</u>	<u>SmygaLen@sd151.k12.id.us</u>	<u>208-878-6600</u>
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Teacher or Lead Teacher (print)	E-mail	Telephone
<u>Julie Nannenga</u>	<u>nannjulie@sd151.k12.id.us</u>	<u>208-878-6690</u>
Signature <u>[Signature]</u>		

Abstract

Cassia Alternative High School, located in Burley, Idaho, is an alternative school for students whose needs include a visual and hands-on approach to motivate learning and understanding of abstract concepts. We are a Targeted Assistance school that is currently not achieving AYP. All of our students are at-risk who struggle with attendance and grade issues, less than desirable family conditions, and psycho-social problems. The ethnicity of our school is comprised of 51% Hispanic, 47% Caucasian, 1% American Indian, and 1% African American. A majority of our students, 81% , receive free or reduced price school lunches, and 33% qualify for Title 1 services.

I am applying for a Smartboard 68012, a complete system that includes speakers, USB extension, and an integrated overhead projector that reduces shadows and improves screen visibility. Because VCR and DVD players can be directly linked to the board, multimedia presentations can be readily accessed. To complete the setup, I am also requesting a Toshiba laptop computer to allow for mobility around the classroom, a Smart Doc camera for document and microscope image viewing, and a Senteo interactive response system. The Senteo system allows students to answer questions through a wireless remote for immediate feedback on concept understanding. Through the use of this system, I anticipate greater student understanding of often difficult concepts and improved school, district, and ISAT test scores.

Current Innovative Technology Use

As the only science teacher at Cassia Alternative who instructs all biological and physical science for the school, I am challenged on a daily basis to provide as much concrete information as possible for abstract or unfamiliar concepts. We are pressed for time, as our school is on a six-week block system. A school survey indicated that 49% of the school's students either don't have a computer at home, or, if they do have a computer, they do not have Internet access. Assigning Internet-related work is difficult for those without access. For each of my classes, I use the Internet to provide current video clips, news articles, and other relevant information for the class being taught. In my meteorology class, we access the Weather Channel to understand weather-wise what is happening around the country and the world. I purchase video downloads for the students to view documented weather events they wouldn't normally see in Idaho. The local daily weather is recorded and graphed at the end of the course, then compared to historical weather data. The Discovery and History Channels provide more information for biology, physical science, and astronomy classes. The students are always amazed to see live footage of space shuttle missions, natural disasters, and other phenomena they only hear about. I also access Google Earth to locate areas affected by weather or environmental conditions.

I use extensively the multimedia support materials that supplement the science curriculum for visual reinforcement. Through the use of our mobile computer lab, students access the McDougall Littell Classzone website for concept and vocabulary review and practice tests. The activity and quiz answers are tracked on a score sheet that each student prints out at the end of the review. I can assess for concepts that need reinforcement before the test. The mobile lab is also used to find astronomical information and manipulate orbital projections of comets, asteroids, and planets through Window to the Universe. Human anatomy and zoology classes use the mobile lab for virtual dissections of various animals.

PowerPoint presentations are a daily part of my instruction. McDougall Littell provides presentations with terrific visuals that the students enjoy. I have designed many presentations of my own for astronomy and physical science lessons. Student-designed presentations demonstrate understanding of the concepts presented.

One piece of equipment of that I have found to be invaluable is the Motocam, a microscope attachment that projects microscopic images onto the computer or TV screen for class viewing. The students make accurate drawings of cells and living organisms and then compare them to objects they find by themselves through the lab microscopes. The Motocam helps to eliminate the guesswork that occurs when students don't really know what they are looking for or at. It also frees me to circulate through the classroom to check for correctness and answer questions. Other science equipment we use includes an electronic balance for accurately finding the mass of objects.

A Smartboard and peripherals would enhance the technology I currently use by projecting it onto a large, class-viewable screen, and permit the students to interact with lessons designed for the Smartboard. The television screen is too small at times for presentations and does not allow for student interaction with the lessons.

Impact on Student Performance

The use of technology gets my students motivated to explore areas to which they may not have been exposed or of which they have limited knowledge. Use of PowerPoint improves their note-taking skills and allows for relevant images and video clips to be seen in context. While I still refer them to diagrams and photos in the text book, the response to visual information is better received through the presentations. The students create their own presentations on class related topics and the result is better test scores.

The astronomy class does extensive planetary research on various Internet websites. They compare and contrast the planets for descriptive information and draw accurate examples of solar flares and prominences from real-time images. As a final project, they create and name their own planets using the information they researched. They apply what they have learned, not just use the information to take a test.

Biology and anatomy students improve their identification skills of animal body organs by completing an online dissection first. Black and white identification guides get the students in the right areas to do the dissection, but the lack of color and 3-D imagery generally causes confusion when finding a specific organ. The virtual dissections provide concrete images to identify the organs in preserved specimens. The use of virtual dissections has increased accuracy in organ location and identification, and also allows me to enjoy the process by verifying what they identify instead of helping each team find what they are looking for. The Motocam also takes the guesswork out of identifying microscopic objects and increases accuracy in drawings and identification tests.

Meteorology classes use information gathered from the Internet to design class projects. Weather charts, based on information from www.weather.com, are produced over a five-week time period. The charts are then used by the students to identify weather patterns and their causes and predict what weather may occur over the following month. The natural disaster footage sparks their interest in how hurricanes, tornadoes, and other severe weather occur. They make models to demonstrate how hurricanes and funnel clouds form, engaging them in the learning process and allowing them to be teachers.

How I Will Use the New Technology

Each of my classes will benefit from the purchase of a Smartboard 68012, Senteo system, Smart Doc peripheral, and laptop computer as I have so many exciting ideas on how to use them. The board will be used daily to enhance and enlarge the videos, images, Internet information, and curriculum support material currently used. What intrigues me most is the interactive ability the Smart technology offers. Smart has lesson downloads available that allow students to manipulate electrons of atoms to simulate the bonding process. Another lets students simulate chromosome cross-over for genetic variation. Both of these abstract concepts are difficult to teach without the use of manipulatives. While beads work somewhat to provide the experience, the Smartboard would allow my students to see and participate in the processes while I can correct and instruct at the same time.

The Smart Doc peripheral will not only be used to show live and preserved images of microscopic items, but also to enlarge book and printed text that the class can see and read. Transparencies will be utilized better by not having an overhead projector that blocks student's views. A good portion of the ISAT test is devoted to reading graphs and charts; instruction on how to read and interpret information from them will be more easily incorporated with the use of the Smart Doc. Student understanding of the information will be assessed and corrected as a whole class immediately instead of collected and reviewed later.

I have been very excited at the prospect of developing partnerships with other schools and government institutions over the Internet. Interaction with other science classrooms nationally and abroad will bring connections to ideas, problems, and solutions in areas outside of Idaho. I plan to contact NASA, Earthwatch, U.S. Forest Service, Bureau of Land Management, observatories and medical universities in order to bring the world to the classroom. Depending on the class being taught, the students will develop projects and collect information to design models, track endangered species, learn about forest management, be a part of space exploration, and design solutions to environmental problems. Several students have expressed interest in marine biology class. Through contacts with aquariums, a class can be developed that has meaning, not just information.

As an AYP school, we are constantly challenged to improve the learning and test scores of our students. Our enrollment consists of students who achieve failing grades; therefore, the challenge is greater. With the use of the Senteo interactive response system, understanding can be checked as the lesson is being delivered through immediate student feedback. Errors or missing concepts can be corrected at once and rechecked for understanding before administering a test. Because the system is a stand-alone component, each teacher can use it. The Senteo will be an integral part of informal assessment for each of the six teachers in our school.

The Science ISAT test, piloted in Spring 2008 for 10th grade, revealed a challenge to elementary, junior high, and high school science instruction. Initial scores for Cassia Alternative indicated that out of the 100% of students tested, 64.86% are below basic; 10.81% are basic, and 16.22% are proficient. In the Hispanic subgroup, 77.78% are below basic; 11.11% are basic; and only 5.56% are proficient. Tracking of future ISAT

Proposed Budget

The project I am proposing requires many capital purchases. Equipment includes the Smart Smartboard 60812 with integrated projector; a USB audio system with two- 15 watt speakers; a 16' USB extension cable to connect the laptop to the Board; a Smart Document Camera; a Senteo Interactive Response System, which includes 32 remotes and 1 receiver; and a Toshiba laptop computer for classroom mobility. Because there are so many features for using the Smartboard to its fullest capabilities, it was recommended that a certified training session be taken. The trainer will come for two separate sessions: one when the system is installed and ready for use, and another follow-up session for troubleshooting and additional instruction. The cost of the training session is included in the grant request. The installation and setup will be done by the school district's technology support team, eliminating the cost of setup.